ESTIMATE OF POPULATION EXPOSED TO DIOXINS FROM THE LAND APPLICATION OF SEWAGE SLUDGE AND CORRESPONDING NUMBER OF ANNUAL CANCER CASES FROM THIS EXPOSURE

This analysis attempts to estimate the number of individuals in the modeled population and from this estimate and an estimated lifetime incremental cancer risk from exposure to dioxins from land applied sewage sludge, estimate the number of annual cancer cases in this population.

- U.S. population of $2.8x10^{+8}$.
- Two percent are the "high end" modeled population that live on farms, raise their own crops and animals, and consume a significant portion of their annual diet from their farms. (EPA's 1997 Exposure Factors Handbook)
- The population to be modeled is therefore $5.6x10^{+6}$.
- No more than 0.2% of farms receive sewage sludge. This is a conservative estimate based on the amount of sewage sludge applied to farms annually, the agronomic rate of sewage sludge application, the estimated number of hectares of farm land receiving sewage sludge, and the comparison of this figure to the total number of hectares of farm land in the United States. (Improving Soils With Organic Wastes, United States Department of Agriculture, 1978). Attached
- This population, therefore, is further reduced to $11.2x10^{+3}$= 11,200.
- At an estimated lifetime risk of $6x10^{-6}$ from the TSD, cancer cases from this population are estimated at 0.067. This value is an overall composite of exposures, risks, and cancer cases within this population. Obviously, some individuals in this population will experience a somewhat higher lifetime cancer risk while others in this population will experience a lower lifetime cancer risk.
- Annual cancer cases in this modeled population are one seventieth the lifetime cases or 0.001.